IN THE CLAIMS:

Please amend the claims as follows:

Please cancel claims 12-15, 17, 18, and 38, without prejudice.

1. (Previously Presented) A method for processing a signal received from a dispersive channel using a reduced-state sequence estimation technique, said channel having a channel impulse response, said method comprising the steps of:

precomputing intersymbol interference estimates based on a combination of (i) speculative partial intersymbol interference estimates for a first postcursor tap of said channel impulse response, wherein said speculative partial intersymbol interference estimates are based on each possible value for a data symbol, and (ii) a combination of partial intersymbol interference estimates for each subsequent postcursor tap of said channel impulse response, wherein at least one of said partial intersymbol interference estimates for said subsequent postcursor taps is based on a first past decision from a corresponding state;

precomputing branch metrics based on said precomputed intersymbol interference estimates;

selecting one of said precomputed branch metrics based on a second past decision from a corresponding state;

computing a new path metric for a path extension from a corresponding state based on said selected branch metrics; and

determining a best survivor path into a state by selecting a path having a best new path metric among said corresponding computed new path metrics.

2. (Previously Presented) The method of claim 1, wherein said speculative partial intersymbol interference estimate or said partial intersymbol interference estimate of said combination equals a channel coefficient multiplied by a data symbol value.

3. (Previously Presented) The method of claim 1, wherein said first or second past decisions from a corresponding state include a survivor symbol.

4. (Previously Presented) The method of claim 1, wherein said first or second past decision from a corresponding state includes an add-compare select decisions.

5. (Original) The method of claim 1, wherein said path metric is an accumulation of said corresponding branch metrics over time.

6. (Original) The method of claim 1, wherein said best path metric is a minimum or maximum path metric.

7. (Original) The method of claim 1, wherein said reduced-state sequence estimation technique is selected from the group consisting essentially of (i) a decision-feedback sequence estimation technique; (ii) a delayed decision-feedback sequence estimation technique; or (iii) a parallel decision-feedback decoding technique.

8. (Previously Presented) The method of claim 1, further comprising the step of storing said precomputed branch metrics in one or more registers before or after performing said selecting step.

9. (Original) The method of claim 1, wherein said signal is a multi-dimensional signal, and transitions in a trellis processed by said reduced-state sequence estimation technique correspond to multi-dimensional symbols, wherein said steps of precomputing and selecting branch metrics comprise the steps of:

precomputing one-dimensional branch metrics based on said precomputed intersymbol interference estimates;

selecting one of said precomputed one-dimensional branch metric based on a past decision from a corresponding state; and

combining said selected one-dimensional branch metrics to obtain a multi-dimensional branch metric.

10. (Original) The method of claim 1, wherein said signal is a multi-dimensional signal, and transitions in a trellis processed by said reduced-state sequence

estimation technique correspond to multi-dimensional symbols, wherein said steps of precomputing and selecting branch metrics comprise the steps of:

precomputing one-dimensional branch metrics based on said precomputed intersymbol interference estimates;

combining said one-dimensional branch metrics to precompute at least two-dimensional branch metrics; and

selecting one of said precomputed at least two-dimensional branch metrics based on a past decision from a corresponding state.

11. (Original) The method of claim 10, wherein said selection of an appropriate at least two-dimensional branch metrics corresponding to a particular state is based on at least two-dimensional survivor symbols from a corresponding state.

12. (Cancelled)

13. (Cancelled)

14. (Cancelled)

15. (Cancelled)

16. (Currently Amended) <u>A method for processing a signal received from a dispersive channel using a reduced-state sequence estimation technique, said channel having a channel impulse response, said method comprising the steps of:</u>

<u>precomputing intersymbol interference estimates based on a combination of (i) speculative partial intersymbol interference estimates for a first postcursor tap of said channel impulse response, wherein said speculative partial intersymbol interference estimates are based on each possible value for a data symbol, and (ii) a combination of partial intersymbol interference estimates for each subsequent postcursor tap of said channel impulse response, wherein at least one of said partial intersymbol interference</u>

estimates for said subsequent postcursor taps is based on a first past decision from a corresponding state;

selecting one of said precomputed intersymbol interference estimates based on a second past decision from a corresponding state;

computing a branch metric based on said selected precomputed intersymbol interference estimates;

computing a new path metric for a path extension from a corresponding state based on said computed branch metrics; and

determining a best survivor path into a state by selecting a path having a best new path metric among said corresponding computed new path metrics

~~The method of claim 12~~, wherein said signal is a multi-dimensional signal, and transitions in a trellis processed by said reduced-state sequence estimation technique correspond to multi-dimensional symbols, wherein said steps of precomputing and selecting branch metrics comprise the steps of:

computing one-dimensional branch metrics based on said precomputed intersymbol interference estimates;

selecting one of said computed one-dimensional branch metric based on a past decision from a corresponding state; and

combining said selected one-dimensional branch metrics to obtain a multi-dimensional branch metric.

17. (Cancelled)

18. (Cancelled)

19. (Cancelled).

20. (Cancelled).

21. (Cancelled).

22. (Cancelled).

23. (Cancelled).

24. (Cancelled).

25. (Cancelled).

26. (Cancelled).

27. (Cancelled).

28. (Cancelled).

29. (Cancelled).

30. (Cancelled).

31. (Cancelled).

32. (Cancelled).

33. (Cancelled).

34. (Cancelled).

35. (Cancelled).

36. (Cancelled).

37. (Previously Presented) A reduced-state sequence estimator for processing a signal received from a dispersive channel having a channel impulse response, comprising:

a decision feedback unit for precomputing intersymbol interference estimates based on a combination of (i) speculative partial intersymbol interference estimates for a first postcursor tap of said channel impulse response, wherein said speculative partial intersymbol interference estimates are based on each possible value for a data symbol, and (ii) a combination of partial intersymbol interference estimates for each subsequent postcursor tap of said channel impulse response, wherein at least one of said partial intersymbol interference estimates for said subsequent postcursor taps is based on a first past decision from a corresponding state;

a branch metrics unit for precomputing branch metrics based on said precomputed intersymbol interference estimates;

a multiplexer for selecting one of said precomputed branch metrics based on a second past decision from a corresponding state;

an add-compare-select unit for computing a new path metric for a path extension from a corresponding state based on said selected branch metrics and determining a best survivor path into a state by selecting a path having a best new path metric among said corresponding computed new path metrics; and

a set of pipeline registers to perform said reduced-state sequence estimation in two stages.

38. (Cancelled)

39. (Cancelled).

40. (Cancelled).